



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

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Project Title Mix It Up: The Sequel	
Objectives/Goals The Project at hand is based on the extensive pollution caused by the burning of oil-gasoline mixtures in two-stroke engines. The main focus is on motorcycles that utilize this type of engine. Three different premix oils competed in a test to find which burned cleanest. The oils consisted of Maxima's Super-M, Maxima's Formula K-2, and Pro Honda's HP2. A hypothesis was developed with the aid of simple observations and past results. The Super-M is designed to be a #smokeless# and #environmentally friendly# formula. It also burned cleanest during last year's experiment. The HP2 formula is specially produced to provide high performance and limited engine wear and therefore has little regard for the environment. It placed last in a previous test. Formula K-2 is also designed for performance, but do to its possession of some ingredients found in Super-M, it was concluded that it would be the median oil. Therefore, if Maxima's Super-M is utilized in two-stroke engines rather than Maxima's Formula K-2 and Honda's HP2, then the lowest output of pollutants among the three oils will be achieved. Materials: Methods/Materials Materials: 1. Honda HP2 Premix oil; 2. Maxima Super-M Premix Oil; 3. Maxima Formula K-2 Premix oil; 4. Three Gasoline reservoirs; 5. Funnel; 6. 1.5 gallons premium gasoline (91 octane); 7. 2002 Honda CR125R; 8. SMOG test device; 9. Thermostat; 10. Logbook; 11. Pencil/Pen; Procedure: 1. Mix all oils with petroleum in appropriate ratios. 2. Insert HP2 fuel into motorcycle reservoir. 3. Instigate combustion, insert smog device into silencer, and test 2X. 4. Turn engine off and drain fuel from bike's tank and carburetor. 5. Repeat steps 2-4 with Super-M and again with Formula K-2. 6. Record all data in logbook. Test conditions were as follows: temperature-55 degrees Fahrenheit, elevation-479 ft, air screw- 2 turns right, needle-clip on top (fifth) groove, choke-off, mix ratio- 3 ounces per gallon. Results Results: Maxima's Formula K-2 came in first, Maxima's Super-M was second, and Honda's HP2 came in last. Conclusions/Discussion Therefore, Maxima's Formula K-2 is in fact a cleaner burning oil than Super-M and HP2. The fact that a lubricant formulated to burn rapidly and improve throttle response will burn cleaner failed to be considered. It is for its ability to burn more completely that Maxima's Formula K-2 placed first during the	
Summary Statement An attempt to find which of three premix oils burns cleanest in a two-stroke engine.	
Help Received Mr. White of A.H.S. auto tech provided smog test Machine.	